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New Variants of Enzyme Immunoassay of Antibodies to DNA

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Abstract

A method of DNA immobilization on cellulose nitrate films has been developed. Modified films of uniform and stable surface have been used to devise two variants of solid-phase enzyme immunoassays of antibodies. The co-immobilization of enzyme label (cholinesterase) and the DNA molecules makes it possible to carry out the procedure of solid-phase enzyme immunoassay without any separation of components. Thus, it takes only 15 min to diagnose an autoimmune disease (Aleutian disease of minks) with the immunoenzyme amperometric sensor, with a lower detection limit for antibodies of 0.5 × 10-10 M. For scaled diagnosing, solid-phase enzyme immunoassay on DNA-modified films with prior separation of components and spectrophotomeiric registration of peroxidase activity has been developed. The time for determination was 30 min, with a lower detection limit of 7.4 × 10-12 M.